

## Neotectonic factors affecting geometry of plains

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### Abstract

© SGEM2015. The objective of this research is to expand our understanding of how endogenous processes influence development of erosion systems. Study of the East European Plain allowed the authors to collect a large amount of data, which show that the life cycle of erosion system is controlled not only by the 'obvious' factors (runoff volume, slope, rock type, etc.) but also by large-scale processes forming the face of the Earth. Such processes, according to the authors, first of all, involve tectonic events that are manifested by vertical movements of crustal blocks and account for formation of uplands and slopes. The authors used a complex technique to check their assumptions, including methods of qualitative and quantitative evaluation of upper crust deformations using archive aerial and satellite images (evolution or degradation of more than 200 gully systems were observed through a series of aerial and satellite images taken in 1953, 1980 and 2008) and morphometric analysis of digital elevation models to create a model of neotectonic activity in the studied territory (hilly plateau in the east of the East European Plain). The authors also found that there is a direct association between neotectonic activity and modern geodynamics: areas with stable or constantly degrading erosion systems are related to neotectonically calm territories, while areas with active dynamics are usually located in close proximity to the medium- and high-amplitude neotectonic uplifts.

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### Keywords

Erosional patterns, Geometry of plains, Neotectonics